

Serial# 09/769,619
Docket 00/052 MFE
Art Unit 177A

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15. The white film as claimed in claim 14, wherein the titanium dioxide and the optical brightener are additionally present in the outer layer(s).

REMARKS

Restriction has been required to limit the invention to the Claims of one of the following groups:

Group I: Claims 1 - 11, drawn to a white film, classified in class 428, subclass 212.

Group II: Claims 12 - 13, drawn to a process for producing a white film, classified in class 264, subclass 171.11.

On April 9, 2002, Klaus Schweitzer in a telephone conversation with the Examiner made a provisional election to prosecute the invention of Group I claims 1 - 11.

Applicants confirm their provisional election of the invention of Group I, and withdraw the claims of Group II from the application, subject to their right to file a divisional application thereon or take other appropriate steps to protect the invention lying within the claims of Group II.

Claims 1 and 10 stand rejected by the Examiner under 35 U.S.C. 112, second paragraph, as being indefinite to failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner notes that in claim 1 it is not clear what the phrase "whose principle constituent is a crystallizable thermoplastic" means when it precedes the transition phrase of "the film comprises..." Also, the use of "where the optical brightener... are fed as a masterbatch during production" is also unclear as presently claimed. In claim 10 the Examiner takes exception with the phrase "more than one layer has been built up".

Applicant has amended claim 1 to particularly point out and distinctly claim the invention. In so doing it was necessary to distinguish that the crystallizable thermoplastic is a polyester polymer, and this phrasing along with pro forma language necessitated in claims 2, 3

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and 4 being amended along with claim 1. Claim 10 is amended to address the Examiner's rejection of the phrasing "more than one layer has been built up".

In addition to claims 1, 2, 3, 4 and 10 being amended, also amended are claims 6, 7, 8 and 9. Claim 6 has been shortened and 2 new claims, claim 14 dependent on claim 6 and new claim 15 dependent on claim 14 are added.

Claims 1-5, 7 and 9-11 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al., U.S. Pat. No. 5,660,931. Kim discloses a white film comprised of polyethylene terephthalate, a rutile-type titanium dioxide, and an optical brightener.

Amended claim 1 differentiates the instant invention from Kim in that the claimed titanium dioxide is not only of the rutile-type but also contains an oxidative coating. Beginning on page 5 last paragraph lines 25 in the specification, applicant discloses that the TiO₂ particles may be oxidically coated and that the coating is comprised of metal oxides and/or organic compounds. The next couple of pages of the specification are devoted to the preferred type of coatings. Kim does not teach the use of metal oxides or organic compounds to prevent the titanium dioxide from being photoactive. While Kim does mention in column 2 line 6 that rutile-type titanium dioxide can be coated with metals such as silver, copper, zinc and the like, Kim does not teach the use of inorganic oxides nor the use of organic compounds. Furthermore, Kim does not teach the use of optical brighteners in combination with titanium dioxide having an oxidative coating.

Claim 6 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of von Meer, U.S. Pat. No. 4,384,040. As the Examiner notes Kim does not teach the use of blue dye and the amount of blue dye as shown in applicant's claim 6. The Examiner goes on to state that "with regard to the limitation of amount of blue dye, absent a showing of unexpected results, it is obvious to modify the conditions of a composition because they are merely the result of routine experimentation."

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The von Meer patent 4,384,040 teaches how to make a waterproof paper support having a photographic emulsion which is coated on both sides. The inclusion of dyes as taught by von Meer in column 4 line 19 teaches that the addition of "blue, violet and red" shading dyes to white pigmented mixtures may be made to enhance the subjective impression of whiteness. Key phrase here is subjective impression of whiteness. In the instant invention a whiteness meter is used to determine the whiteness totally objectively with the aid of a @ELREPHO electrical reflectance photometer from Zeiss, Oberkochen, Germany, standard illuminant C, 2° standard observer. Further in that same column 4 of von Meer on line 28, von Meer teaches that there is no limit to the size of the color or black pigment particles, suggesting that black particles can also be used to make a white film having the properties described in the instant invention. Furthermore the von Meer coating is produced with an emulsion, which is infinitely easier to disperse pigments and dyes within, as compared to a thick extrudate of polyester. Ultramarine, having the chemical formula $\text{Na}_{8-10}\text{Al}_6\text{Si}_6\text{O}_{24}\text{S}_{2-4}$, is a sulfur-containing sodium aluminum silicate, and cobalt blue, having the chemical formula of $\text{CoO} \cdot \text{Al}_2\text{O}_3$ is the cobalt (II) oxide of aluminum oxide. Both of these compounds are metal oxides, which are insoluble in water, and are known to be soluble in glass. It is not obvious that they would be soluble in polyester polymer. Furthermore von Meer does not teach the use of titanium dioxide having an oxidative coating.

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6 that color
blue soluble in
polyester
Murschall

Claim 8 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Murschall U.S. Pat. No. 5,900,294. The Examiner points at the titanium dioxide which is coated with inorganic oxides of aluminum, silicon, zinc, and magnesium.

The titanium dioxides coated with inorganic oxides disclosed in Murschall's patent are for use with olefinic films, such as polypropylene. Murschall does not teach the use of coated titanium dioxides in oriented opaque white polyester films. Murschall does not teach the use of optical brighteners nor of forming masterbatches. Furthermore Murschall's patent is drawn specifically as it relates to polymers having a low degree of crystallinity (col 2, line 29). Applicant's invention as indicated in the title, specification and the claims, is for crystalline thermoplastic polyester polymers, and films thereof.

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show coating
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fastness

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A petition for a one-month extension of time to be charged to Deposit Account 502193 is attached. The USPTO is hereby authorized to charge any fee deficiency to Deposit Account 502193.

Also attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned **"Version With Markings To Show Changes Made"**.

In view of the Amendment to the claims, and in light of these remarks, it is submitted that the present application is now in condition for allowance and such is earnestly solicited.

Respectfully submitted,



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Art Unit 1774**VERSION WITH MARKINGS TO SHOW CHANGES MADE****In the Claims:**

Claims 1 - 4 have been amended as follows:

1. (Amended) A white film having with a thickness of from 10 to 500 μm , comprising ~~whose principal constituent is a crystallizable thermoplastic polyester polymer, wherein the film comprises at least one titanium dioxide of the rutile type that is oxidically coated, as white pigment and at least one optical brightener, where the optical brightener or the titanium dioxide or the optical brightener and the titanium dioxide are fed as a masterbatch during film production; wherein the titanium dioxide and the optical brightener are provided in the form of at least one masterbatch .~~
2. (Amended) The white film as claimed in claim 1, wherein the film comprises a crystallizable thermoplastic polyester polymer selected from the group consisting of polyethylene terephthalate, polybutylene terephthalate and polyethylene naphthalate.
3. (Amended) The white film as claimed in claim 1, wherein the titanium dioxide amount ~~of white pigment~~ is present between 0.3 and 25% by weight, based on the weight of the crystallizable thermoplastic polyester polymer.
4. (Amended) The white film as claimed in claim 1, wherein, based on the weight of the crystallizable thermoplastic polyester polymer, the optical brightener is present from 10 to 50,000 ppm ~~of optical brightener are present in the film.~~

Claims 6 - 11 have been amended as follows:

6. (Amended) The white film according to as claimed in claim 1, further comprising ~~wherein, besides the optical brightener, a polyester-soluble blue dye selected from the group consisting of cobalt blue, ultramarine blue, anthraquinone dyes and combinations~~

CB soluble in

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~~thereof, is present in the film, and the amount of blue dye is from 10 to 10,000 ppm,
based on the weight of the crystallizable thermoplastic.~~

7. (Amended) The white film as claimed in claim 1, wherein ~~the film said~~ comprises titanium dioxide has a composition that is particles which are composed of at least 95% by weight of rutile, and wherein said titanium dioxide exists as titanium dioxide particles having have an average particle size of from 0.10 to 0.30 μm , where the particle size is determined using a (Scdigraph method).
8. (Amended) The white film as claimed in claim 7, wherein the titanium dioxide particles having the oxidic coating consisting coated have a coating of inorganic oxide(s) or of an organic compound(s) or of inorganic oxide(s) and of an organic compound(s), and wherein the coating comprises from 1 to 12 g, of inorganic oxide(s) or from 0.5 to 3 g, of organic compound(s), or from 1 to 12 g of inorganic oxide(s) and from 0.5 to 3 g of organic compound(s) based on 100 g of titanium dioxide particles.
9. (Amended) The white film as claimed in claim 1, whercin the ~~whiteness of the film has a~~ whiteness that is 85%, ~~and a its~~ Yellowness Index that is 40, ~~at a thickness of from 10 to 500 μm .~~
10. (Amended) The white film as claimed in claim 1, wherein the film has one or more layers, and whercin ~~the embodiment having more than one layer has been built up from at least one~~ said layers consist of a core layer and from at least one outer layer.
11. (Amended) The white film as claimed in claim 10, whercin the titanium dioxide and ~~also~~ the optical brightener are present in the core layer ~~or in the core layer and in the outer layer(s).~~

Please cancel claims 12 and 13.

Please add new claims 14 and 15.

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14. The white film as claimed in claim 5, wherein the polyester-soluble blue dye is selected from the group consisting of cobalt blue, ultramarine blue, anthraquinone dyes and combinations thereof, and wherein said polyester-soluble blue dye is present from 0.0 to 10,000 ppm, based on the weight of the crystallizable thermoplastic polyester polymer.
15. The white film as claimed in claim 14, wherein the titanium dioxide and the optical brightener are additionally present in the outer layer(s).